BAA 05-18 - FAQ
Biologically-Inspired Cognitive Architectures

1. Revised Due Date for Initial Proposals

   The due date for the initial proposals for BICA is April 25, 2005. This applies to proposals for all four thrusts in the program. We anticipate that awards will be made about August 15, 2005.

   Items 2 through 8 respond to questions about BICA Mod 3 (Thrust D details and relationship to Thrusts A and B)

2. Participation in Technical Exchange Meetings – Thrust D

   Research teams in Thrust D (either Task D1 or D2) will be expected to participate in the Technical Exchange Meetings during month 7 along with all other teams.

3. Task Schedules: Sequential and Concurrent Tasks

   Thrusts A, B, and C each have three tasks that will be performed sequentially over the 13-month period of performance. Tasks A1, B1, and C1 will be performed during the first six months; the Technical Exchange Meetings (Tasks A2, B2, and C2) will occur during the subsequent month (Month 7 of the 13-month period); Tasks A3, B3, and C3 will be performed during the last six months (Months 8-13 of the 13 month period).

   Thrust D has two tasks (D1 and D2) that will be performed concurrently over the full 13-month period. In other words, Task D1 (both Tasks D1-1 and D1-2) will be performed during the entire 13-month period, including attendance at the Technical Exchange Meeting in Month 7; and Task D2 will be performed during the entire 13-month period, including attendance at the Technical Exchange Meeting in Month 7.

   Please see Figure 1 (revised) from the original Proposer Information Pamphlet

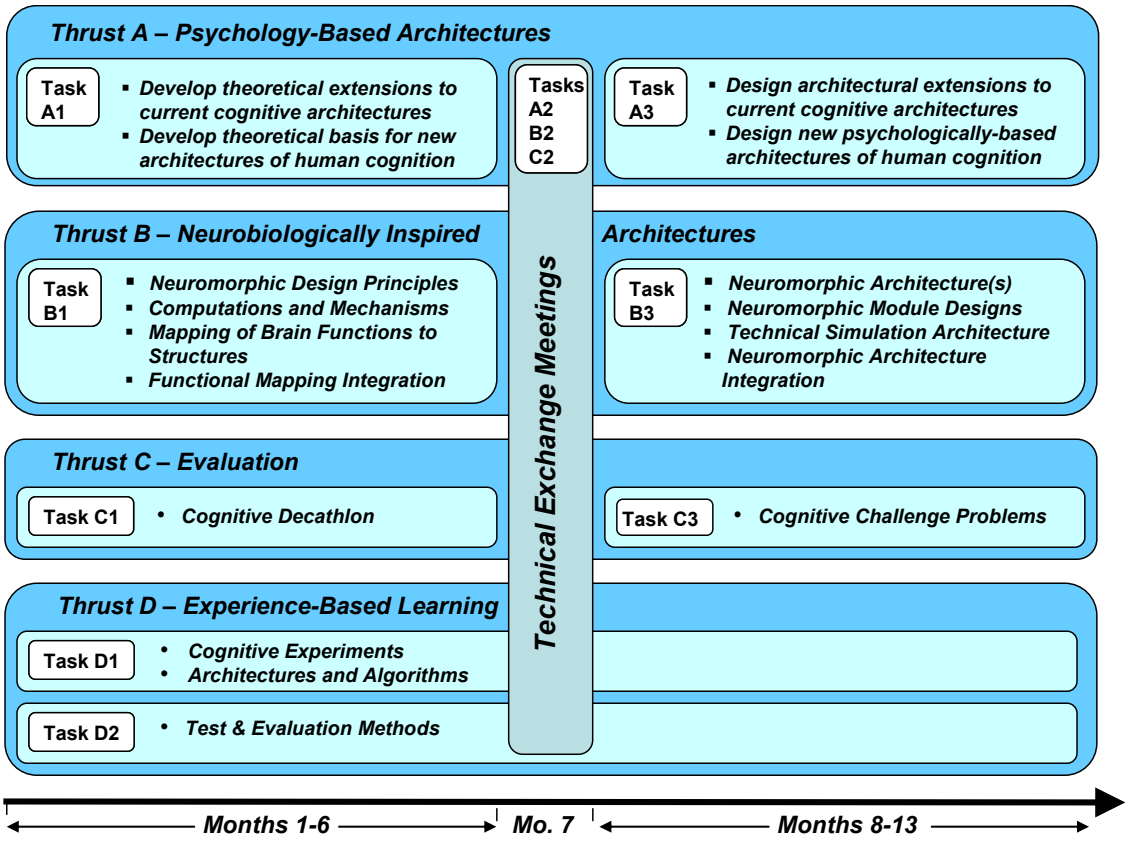

Figure 1. Organization of Program Phase 1 (revised)

4. Clarification of Distinction Between Thrust A and Thrust D

   Thrust D deals with a specific functionality, singled out because of particular interest in experienced-based learning as the basis for more flexible knowledge representation. Thrust D is narrower and more specific than Thrust A. Thrust D is focused on concept and schema formation from experience. Thrust A is interested in more general models of human cognition, including experience-based or episodic learning.

   Both Thrust A and Thrust D are interested in designing (and eventually building) computational models of cognition, heavily influenced by the latest psychological research on human cognition. Both thrusts are interested in modeling experienced-based or episodic learning. However, Thrust D focuses primarily on concept and schema formation from experiences (what you might think of as forming concepts in semantic memory from episodic experiences); Thrust A is interested in <u>all</u> major cognitive functions, including those mentioned in Thrust D, but is not limited to memory formation. Thrust D is interested in developing flexible knowledge representation techniques to create more flexible but still

"artificial" learning and reasoning systems; Thrust A is interested in creating faithful models of human cognition.

Thrust D will have its own test problem, outlined in the new addendum to the PIP, that will test concept and schema formation from descriptions of experiences; Thrust A will be tested by the Cognitive Decathlon test suite that will include some test of episodic learning along with other tests of major cognitive functions and that will be administered by simulating experiences (as opposed to describing the experiences symbolically as it will be done in Thrust D).

Thrust D also has a unique feature in that it solicits proposals, under Task D1-1, for experiments in cognitive psychology or neuroscience to discover the basic mechanisms of experienced-based learning to be modeled in Task D1-2; Thrust A only solicits work to design models of cognition using experimental results from the existing literature in cognitive psychology and neuroscience.

Finally, Thrust A has been designed to be worked in close relationship with Thrust B while we have not yet worked out or specified how Thrust D will relate to Thrust B. In the case of Thrust A, we are soliciting proposals for Thrust A or B individually or combined proposals for Thrust A and B together. In the case of Thrust D, we are soliciting separate proposals for Thrust D (for either Task D1 or D2) and are <u>not</u> accepting combined proposals for Thrust A & D or B & D.

5. Bidding Thrust A and/or Thrust D

We solicit proposals from bidders whose research interests, experience, and qualifications match one or more of the Thrusts of the BICA program.

For those who resonate with the detail, focus and experimental nature of Thrust D, we hope you will consider submitting a proposal for Thrust D.

Similarly, for those who see a match with the broader modeling and architecture development in Thrust A and/or the hybrid possibilities between Thrusts A and B, we hope you will consider submitting a proposal for Thrust A (and B if appropriate). This would include work on items and issues described in Thrust D, if you are interested in designing and developing broader, more complete models of cognition as well. If your interest is only in concept and schema formation, you should bid to Thrust D; if your interest includes experienced-based learning or episodic learning as well as other cognitive functions, you should bid Thrust A.

In general, if you read Thrust D and resonate with the specifics of that Thrust, then you should bid Thrust D. If you read Thrust D and A and are not sure which one is a better match for your research interests, you should bid Thrust A.

If your interests and qualifications cover both general scope of Thrust A and specific focus of Thrust D, we recommend that you submit separate proposals

tailored for the details of each thrust. If you are proposing to develop a general cognitive model that includes elements of both Thrust A and D, we recommend that you propose to Thrust A.

6. Experimentation (Task D1-1)

   For those interested in proposing cognitive experiments under Task D1-1, we are interested in funding a limited number of experiments designed to resolve issues critical to the design and development of cognitive models for Thrust D. We realize that there is a wealth of existing experimental literature in cognitive psychology and neuroscience addressing the research issues outlined in Thrust D. We are not interested in funding the continuation of general research in these areas, but are interested, instead, in very focused experiments that address issues that must be resolved to design models of the experienced-based learning system described in Thrust D.

7. Bidding on Task D1-1 and Task D1-2

   Bidders may propose to Task D1-1, Task D1-2 or both.

8. Relative Level of Emphasis for Thrust D

   The dollar amount of awards will be determined by the quality of proposals and funds available. Staff years below are shown only to illustrate the relative emphasis among the different program elements. DARPA reserves the right to modify the size and composition of the Thrust D awards, based upon the merits of the proposals received.

   We anticipate that the total effort across the entire program for Thrust D1 will be about 12 FTEs.

   We anticipate that the total effort for Thrust D2 will be about 4 FTEs.